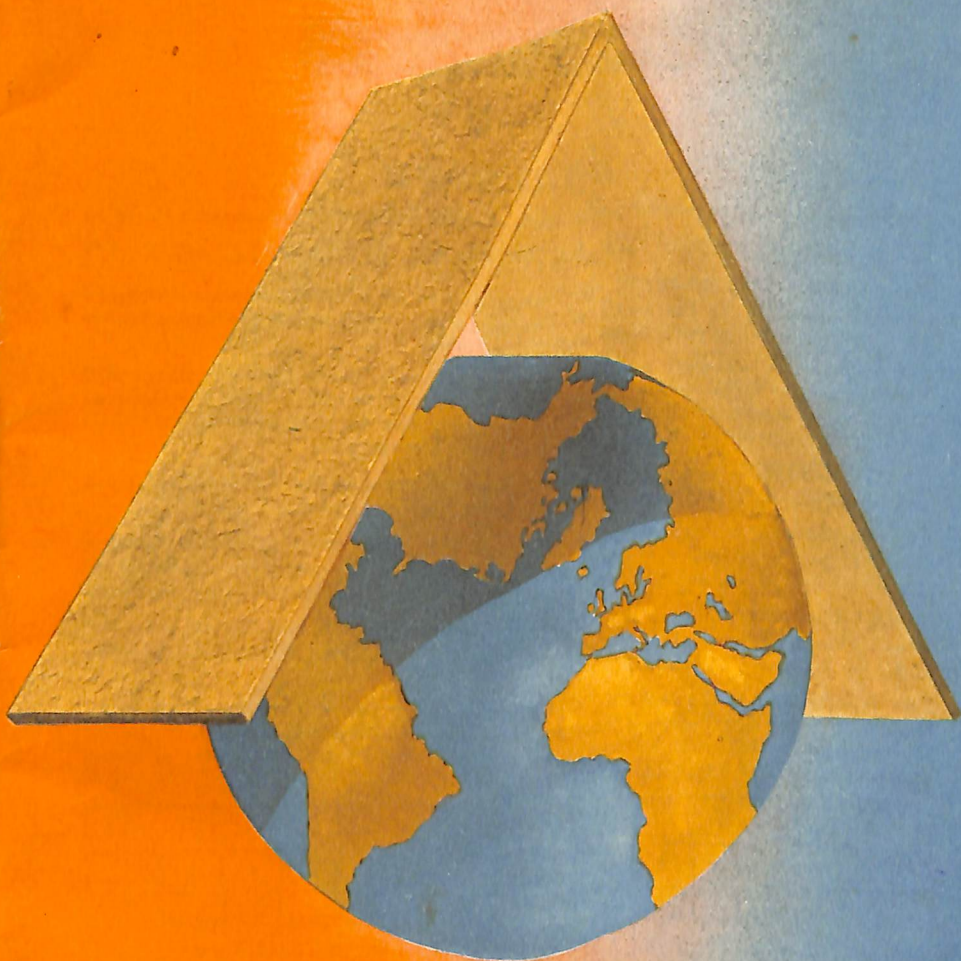


FIBRE BUILDING BOARDS



ANKARBOARD

INSULATION AND HARDBOARDS

MANUFACTURED IN SWEDEN

**TECHNICAL NOTES
FOR ARCHITECTS AND BUILDERS**



FOREWORD

Ankarboard is the registered trade mark of Fibre Building Boards manufactured by **ANKARSVIKS ÅNGSÅGS AKTIEBOLAG, SUNDSVALL, SWEDEN**

ANKARBOARDS PRODUCTS are manufactured at a most modern constructed Factory, situated in the north of Sweden in the forest region producing timber of excellent quality, with large and thick fibres.

The Companies extensive requirements and purchases made for their Board Mill and large Saw Mills enable them to select the best possible timber for the manufacture of «ANKARBOARD». Fibre Building Boards, thus assuring that their products are made of the highest quality in every respect.

«ANKARBOARD» is manufactured in two main types of Board, Insulating Board and Hardboard. In addition certain special types are produced.

The special characteristics and qualities of the whole range of «Fibre Building Boards», produced under the name of «ANKARBOARD» are fully explained in the following pages, together with instructions and information as to their best uses.

«ANKARBOARD». Sole representatives for Great Britain and Ireland are, The Wood-Fibre Wallboard Co., Staple Hall, Stone House Court, Bishopsgate, London, E. C. 3. Telephone Avenue 3611/3.

The Wood-Fibre Wallboard Co. welcome enquiries for information from those interested in «Fibre Building Boards», and places at their disposal their Technical Department, which will be happy to advise on the uses and methods of fixing and application of the materials.

SIZES											
Feet	Centimeters	1	2	3	4	5	6	7	8	9	
4 × 2	122 × 61	0,74	1,49	2,22	2,96	3,70	4,44	5,18	5,92	6,66	m2
4 × 4	122 × 122	1,42	2,98	4,47	5,96	7,45	8,94	10,4	11,9	13,4	m2
4 × 6	122 × 183	2,23	4,46	6,69	8,92	11,2	13,4	15,6	17,8	20,1	m2
4 × 7	122 × 213	2,60	5,20	7,80	10,4	13,0	15,	18,2	20,8	23,1	m2
4 × 8	122 × 244	2,97	5,94	8,91	11,9	14,9	17,8	20,8	23,8	26,7	m2
4 × 8 ¹ / ₂	122 × 259	3,16	6,32	9,48	12,6	15,8	19,0	22,1	25,3	28,4	m2
4 × 9	122 × 274	3,34	6,68	10,0	13,4	16,7	20,0	23,4	26,7	30,1	m2
4 × 10	122 × 305	3,72	7,44	11,2	14,9	18,6	22,3	26,0	29,8	33,5	m2
4 × 12	122 × 366	4,46	8,92	13,4	17,8	22,3	26,8	31,2	35,7	40,1	m2
4 × 13	122 × 397	4,83	9,66	14,5	19,3	24,2	29,0	33,8	38,6	43,5	m2
4 × 14	122 × 427	5,20	10,4	15,6	20,8	20,0	31,2	36,4	41,6	46,8	m2

ANKARBOARD

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Quality	Thickness	Standard sizes	Number of sheets in each bale	Approx: weight p. m. 2 Net. Gross	Characteristics and their use — see pages
INSULATING (or Porous)	1/2"=13mm 5/16"=8mm 1/4"=6,5mm 3/4"=19mm 1 1/4"=32mm	4 feet wide by 6, 7, 8, 9, 10, 12, 13, 14 feet long	8 12 16 6 4	3,0 3,5 kg 2,0 2,3 kg 1,7 2,0 kg 4,3 5,0 kg 7,0 8,0 kg	4—7
HARDBOARD	1/8"=3,5mm 3/16"=5mm		10 6	3,4 4,0 kg 4,8 5,5 kg	8—11
INSULATING (Grooved) for plaster work	1/2"=13mm	4×2'	20	3,0 3,5 kg	12
ANKARTEX made from insulating material faced on both sides with hard- board	10mm 12mm 16mm	4×4, 6, 8, 10, 12'	4	7,0 8,0 kg 7,3 8,5 kg 8,0 9,3 kg	13
ANKARBOARD Termite resisting	Thickness and sizes and other details as for standard Insulating and Hardboard qualities.				14
ANKARBOARD Insulating and flexible	1/2"=13mm	2×6, 7, 8, 9, 10, 12, 13, 14'	8	3,0 3,5 kg	14
Acoustic tiles boards, a combina- tion of grooved in- sulating board and perforated hardboard	5/8"=16mm 7/8"=22mm	1'×1' 1'×2' 2'×2'		6,5 7,5 kg 7,8 9,0 kg	15
Insulating Moulding Strips	1/2"=13mm	3"×4' o. 4"×4'—100 Strips=100 metres			16
Grooved Boards for facing ceilings	1/2"=13mm	2×6, 7, 8, 9, 10, 12, 13, 14'	16	3,0 3,5 kg	16

METHODS OF USE 17—31

INSULATING BOARD

CHARACTERISTICS: Thermal heat and cold insulation.

Surface sound absorption and acoustical properties.

Light weight and dry construction.

Fixing without special equipment.

Attractive surfaces and uniform colour.

Flexibility for flat or curved surfaces.

Easy adaptation for decorative or architectural design.

LARGE STANDARDISED SHEETS.

USES: For insulation against heat, cold, damp and sound.

For interior and constructional work in Houses, Industrial Buildings and Huts constructed of wood, brick, cement, metal and other materials.

Especially for large surface work.

For insulating lining of walls, improving the acoustic properties in Churches, Concert Halls and Conference Rooms.

For insulating coverings to absorb damp and create dry and hygienic conditions in basements and lofts.

For deadening sound as a base for linoleum, carpets and floorings.

As a base for plaster for exterior and interior walls, ceilings, and for wall decorative work, papering and painting.

For Household and Kitchen equipment, Shop fitments and Window display.

For the construction of Film Studio Sets and Stage scenery, temporary buildings and equipment.

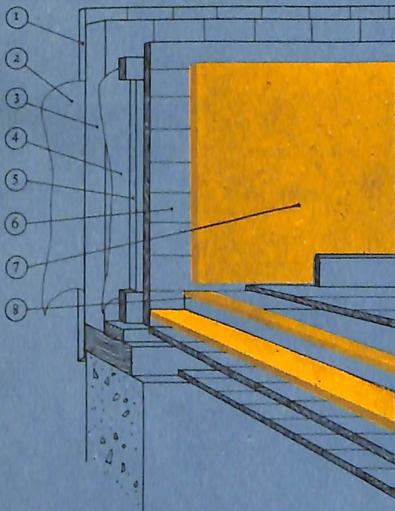
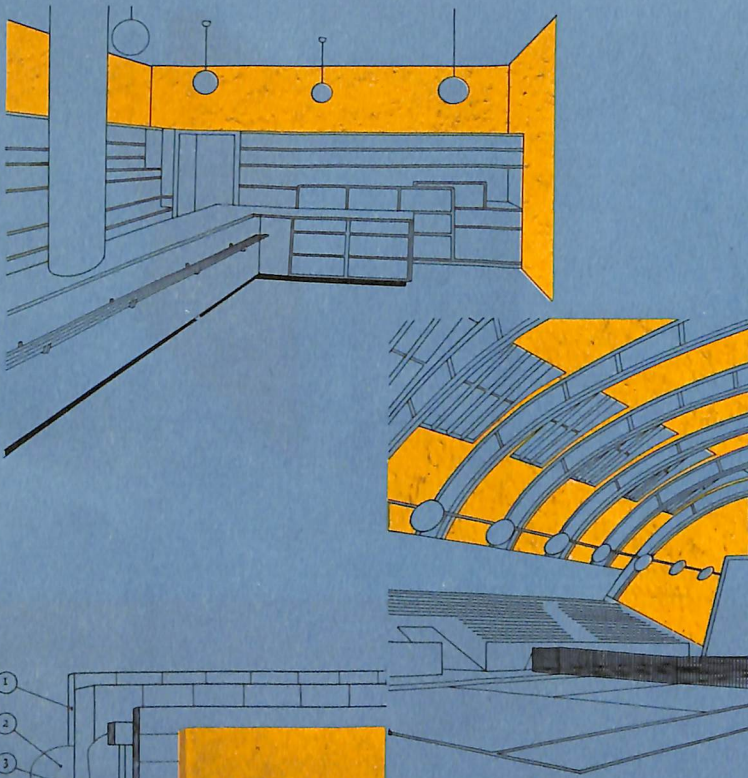
For sound and insulating fitments of Automobiles, Aircraft and Radio equipment.

For partition, Temporary Walls, Repairs reconstruction of old Buildings.

For Exhibition and Display Stands.

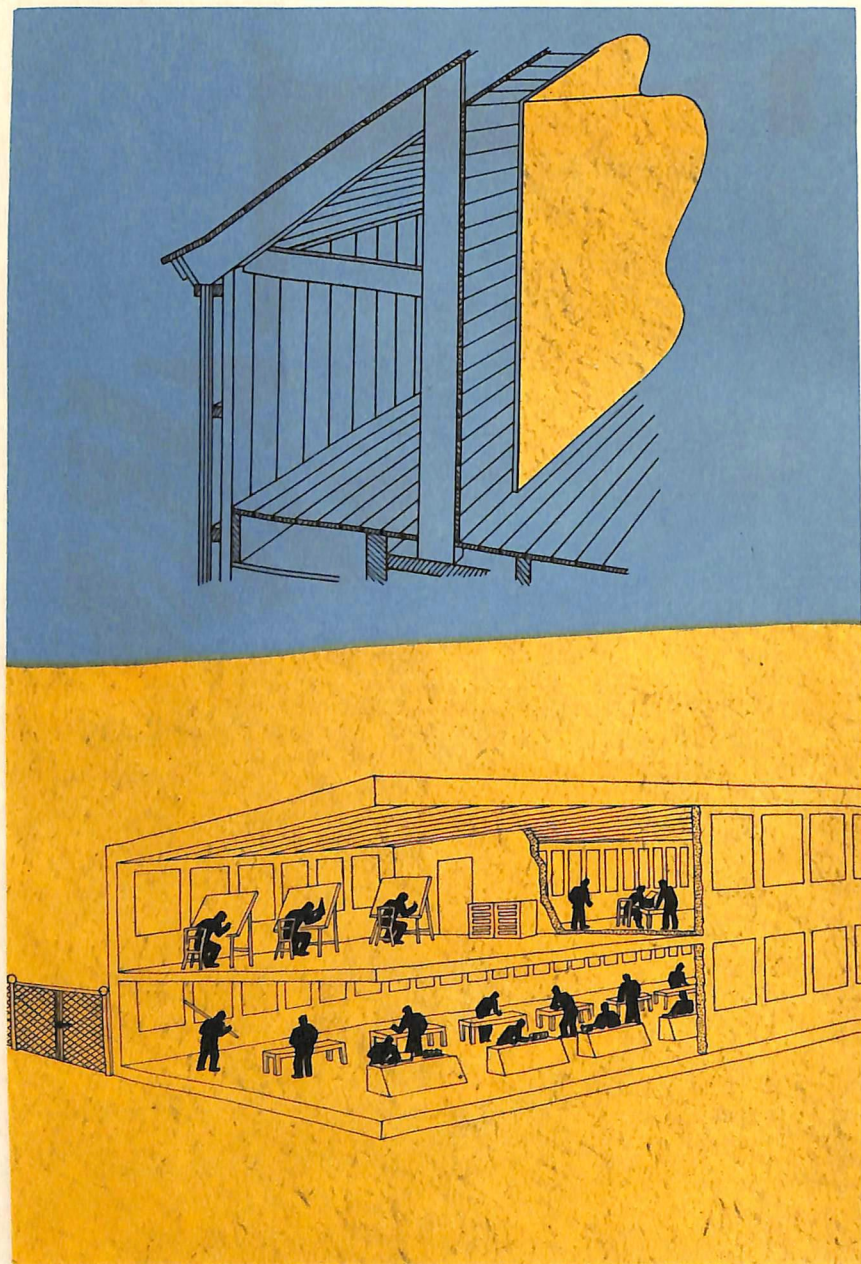
For lining Stables, thus improving the living conditions of the animals.

BUILDINGS SHOWING THE USE OF ANKARBOARD

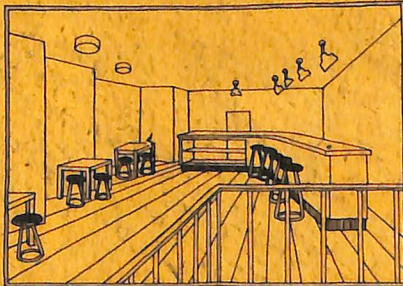
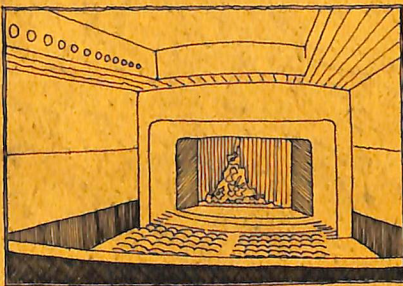
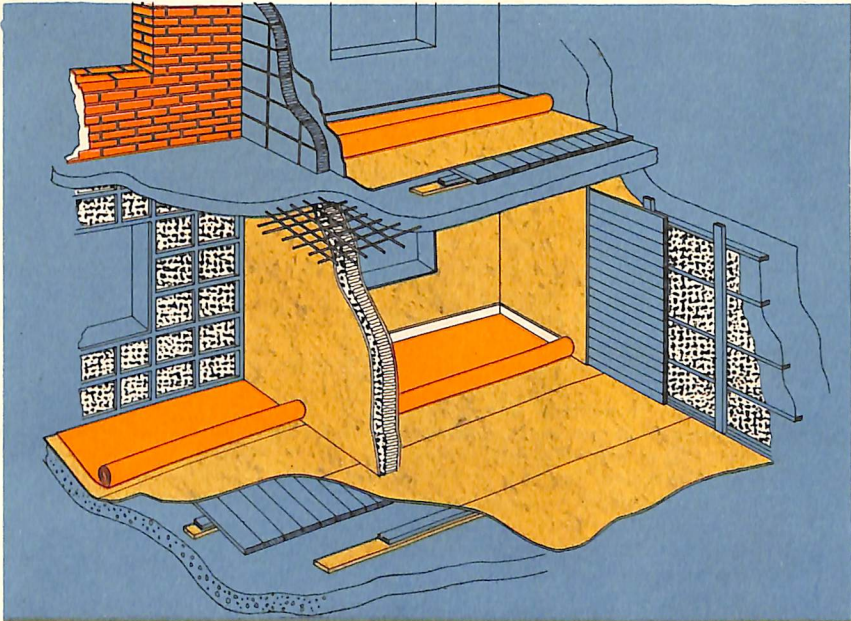


- ① 1" board exterior
- ② Asphalt sheeting
- ③ 2½ tongue and grooved boarding
- ④ Lining board
- ⑤ 1" boarding
- ⑥ ¾" interior boards (tongue and grooved)
- ⑦ Insulating Ankarboard
- ⑧ Ankarboard insulating strips

BUILDINGS SHOWING THE USE OF ANKARBOARD



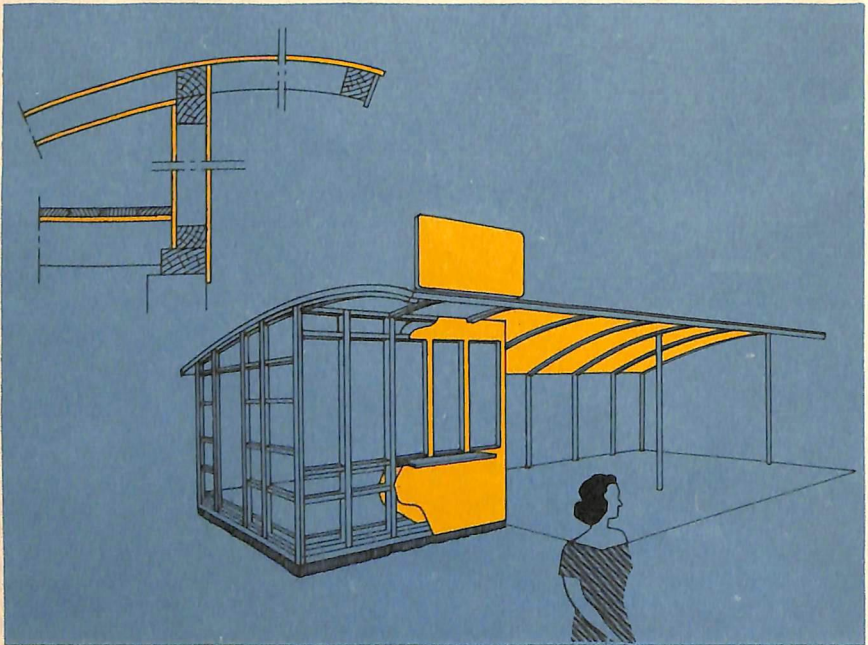
BUILDINGS SHOWING THE USE OF ANKARBOARD



HARDBOARD

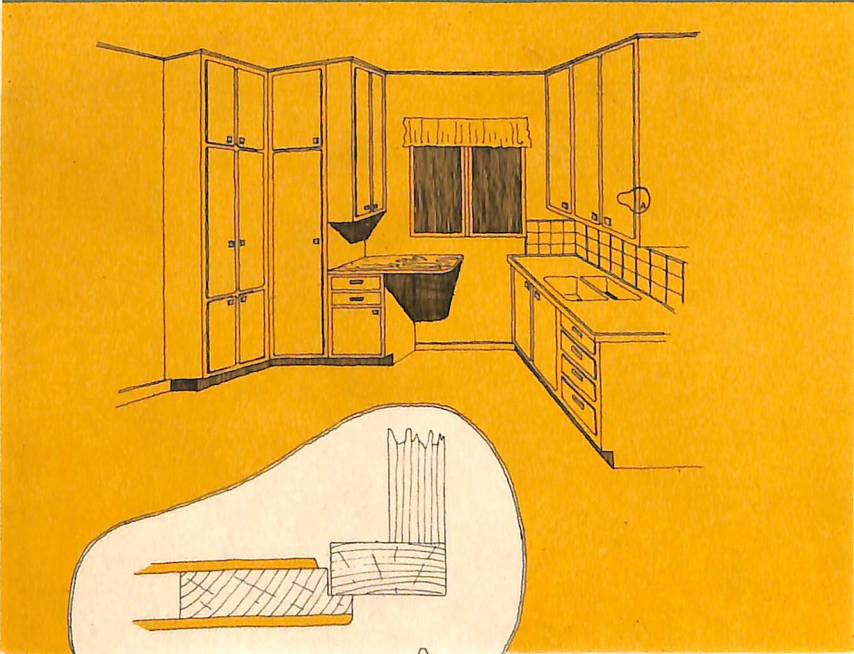
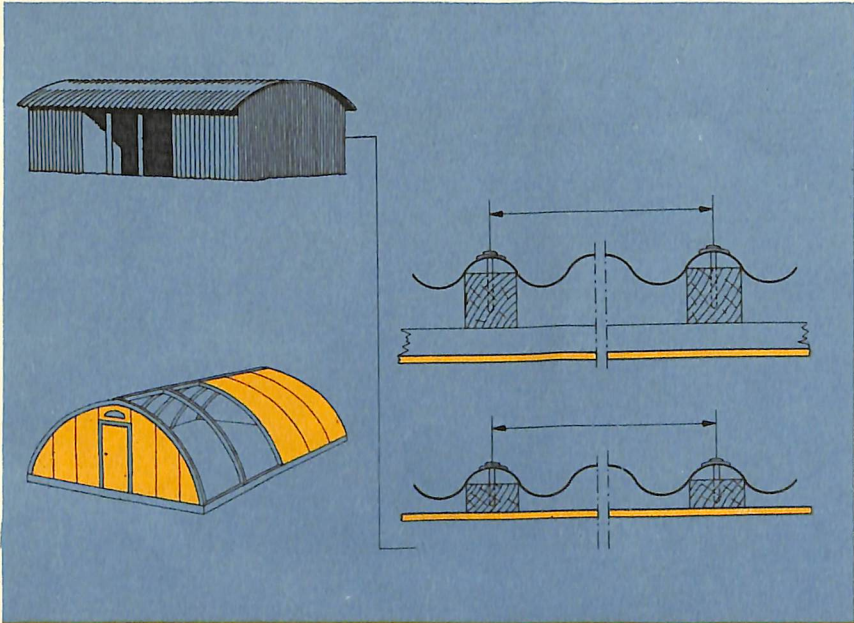
CHARACTERISTICS: Resistant to changes in humidity and temperature.
Will stand hard wear and usage because of its density and rigidity.
Flexibility for flat or curved surfaces.
Uniform surface, smooth on one side and agreeably grained.
Regular felt mark on reverse side specially suitable for finishing with oil and cellulose paints, enamel and plastic coatings.
Free from condensation and pattern staining. Easy adapted for decorative or architectural design.
Large Standardised sizes.
Dry construction and light weight.
Fixing without special equipment.

USES: For shuttering for concrete work.
For the interior lining of wall, ceilings, and for other internal work and linings to roofs, etc.
For the construction of Industrial Buildings, Houses, Huts, Shops, Kiosks, etc.
For lining Bathrooms and Lavatories.
For joinery of all kinds, such as panels for cupboards, dressers, shelves, facing flush and cupboard doors.
As a Veneering Base for Furniture and Radio Cabinets.
For coach, omnibus, caravan, motorcar and railway carriage work.
For work where great resistance to damp and to wear and tear is required.
For internal and external decorative work of all kinds.
As a base for direct painting or other treatment.
For machine tables and fittings.



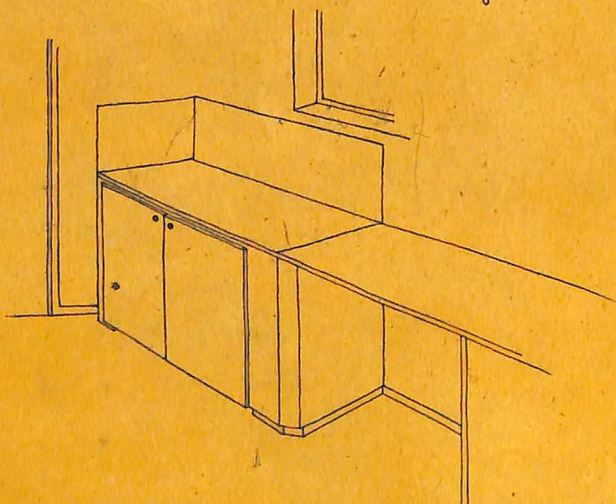
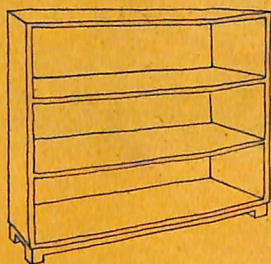
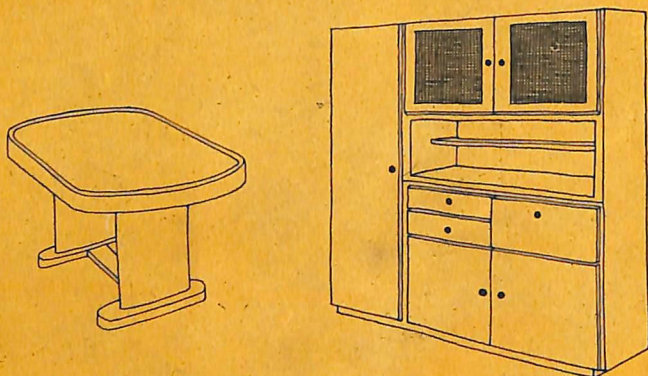
Kiosk

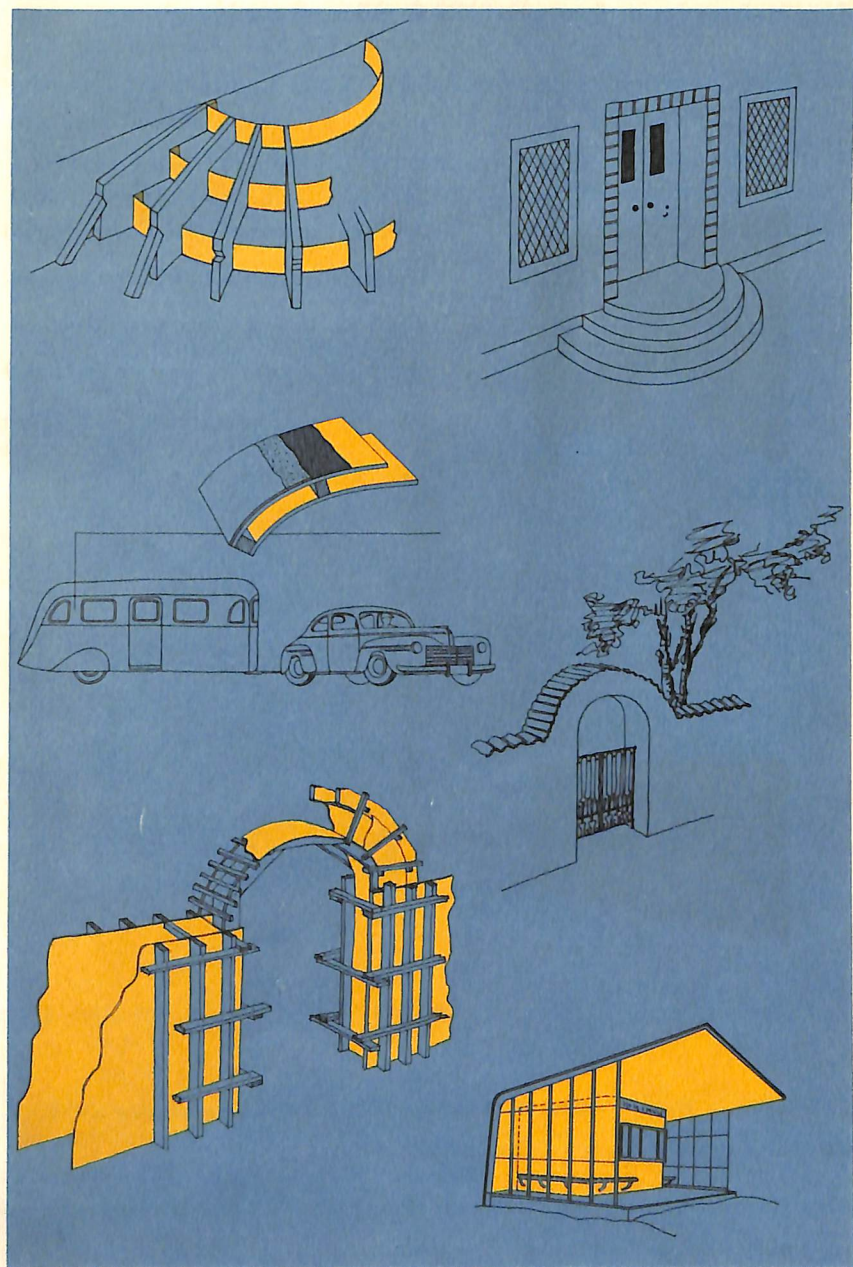
Sheds



A.

Kitchen

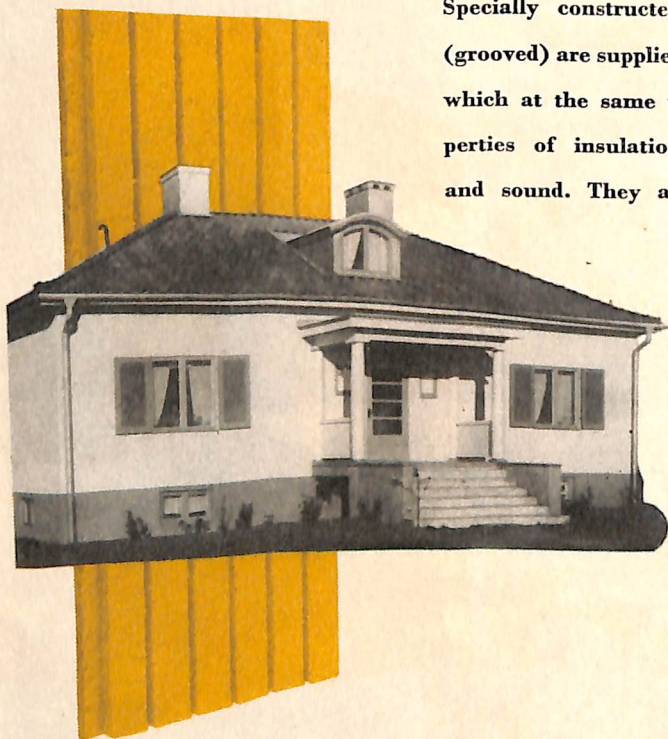




Ankarboard used as shuttering and caravan panelling

Insulating board for plastering work

Specially constructed insulating boards (grooved) are supplied for plastering work, which at the same time retain their properties of insulation against heat, cold and sound. They are also damp proof.



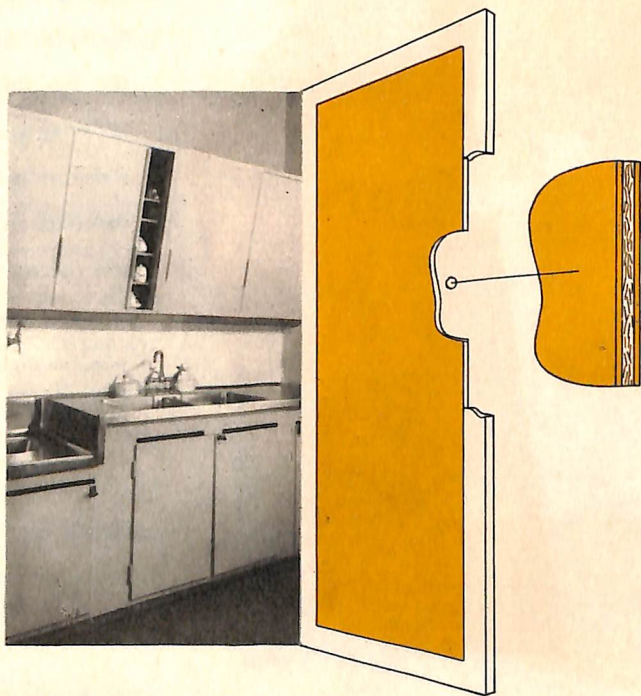
This house is covered outside with the special $\frac{1}{2}$ " insulating plastering »ANKAR-BOARD«, specially (grooved) for holding plaster.

This photograph was taken four years after the finish of the plastering work and no deterioration or defects can be observed.

ANKARTEX

»ANKARTEX» is composed of a thick core of insulating material, lined on both sides with hardboard.

It is manufactured in different thicknesses and can be used in many kinds of Joinery Work, where a combination of the qualities of both insulating and hardboards are required.



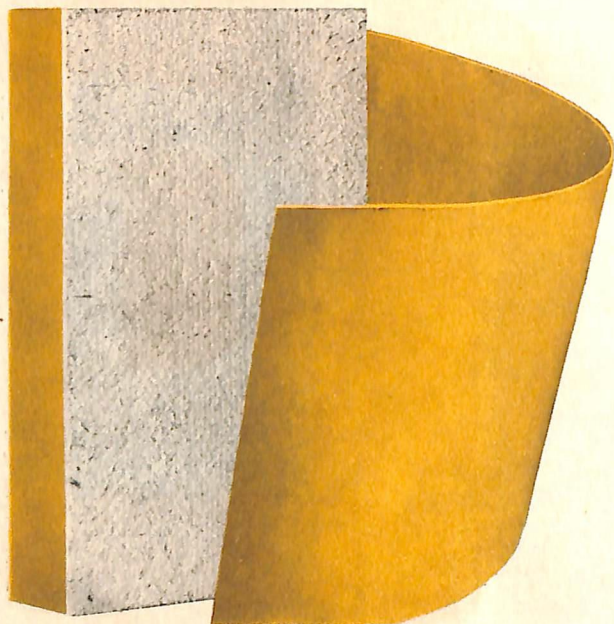
(Constructed - Hardboard - Insulating Board - Hardboard)

This interior shows a Kitchen with the cupboard doors made of hardboards and the Kitchen door with a panel of »Ankartex».

Termite resisting Ankarboard

All qualities of Ankarboard can be supplied to resist termites, and specially made to customer's specification and requirements.

Insulating and flexible Ankarboard



Specially designed for the insulation of drying machines, stoves, refrigerating installations, electric ovens, acid tanks, cisterns, hot water storage tanks, boilers, etc.

THE THICK BOARD

is $1\frac{1}{4}$ " thick Insulating Ankarboard covered with asbestos.

The board is specially manufactured to obtain greater degree of insulation for industrial requirements.

THE THIN BOARD

shows the strength and flexibility of the Standard Insulation quality.

Ankarboard absorption boards

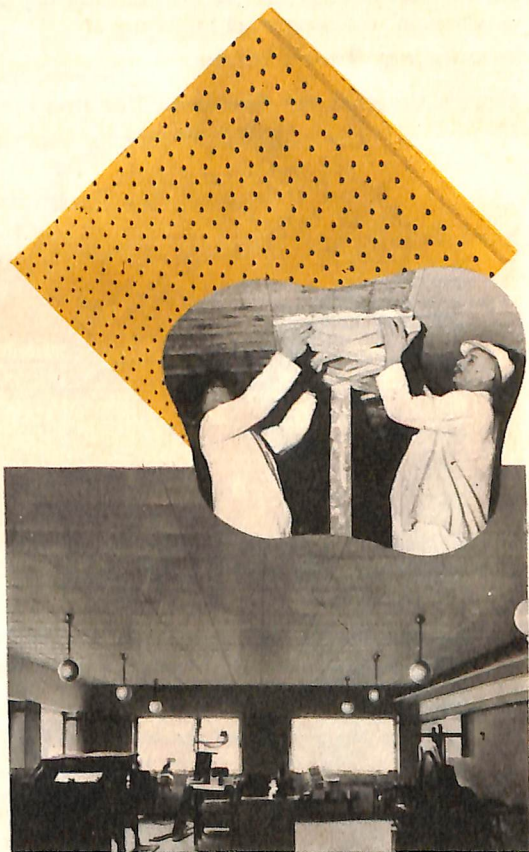
These special sound absorption boards are made by the combination of perforated hardboard bonded on each side of the $\frac{1}{2}$ " grooved insulation board.

These boards have been used advantageously for insulating the ceilings of a large Newspaper Printing and Publishing Works, where it was desired to prevent the noise of the machines reaching the editorial offices situated above.

Our standard productions of Insulating Boards and also perforated Hardboards can also be used in the elimination of all kinds of noises.

When using Ankarboard for sound absorption it is most necessary to varnish the sheets, but never use oil paint.

Our Technical Department will be pleased to advise on any special acoustic difficulties that may arise.

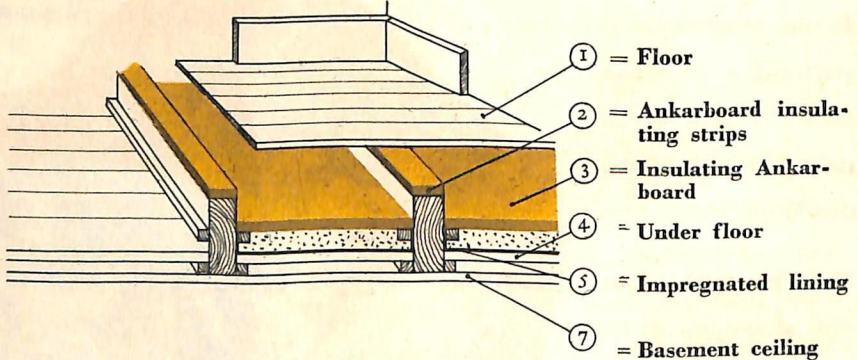


Insulating strips

For the requirements such as the insulation of floors and for sound absorption or vibration, we recommend the laying of

Insulating Board strips

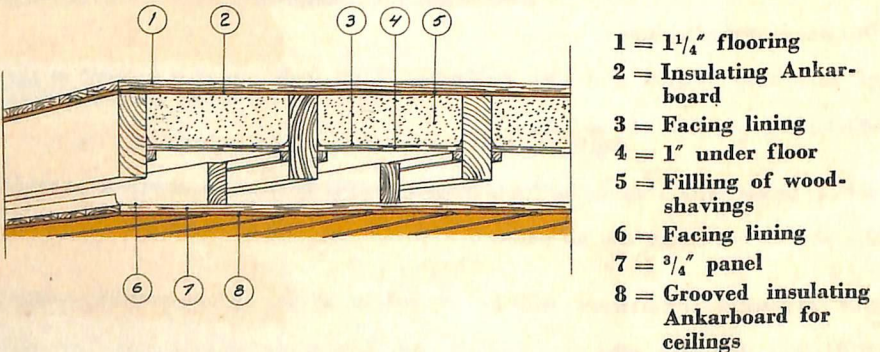
between the joists and floorboards. This gives excellent results.



Grooved sheets for covering ceilings

For covering interior ceilings specially grooved insulating boards are manufactured so that movements in the joint between the boards are invisible.

The edges of the boards are bevelled in such a way that the joints after fixing are similar to the grooves on the surface of the boards. In this way the cracks etc. caused by movements in the boards are not visible; strips over the joints are therefore unnecessary. The sheets are fitted in the same manner as in the use of other qualities of Ankarboard.



Method of use

Ankarboard fibre building boards, like other building materials, needs to be used in a special way. The following notes and instructions should be followed carefully in order to obtain the best results.

These rules should be observed with all qualities of Ankarboard.

- 1) Protect the boards against damage and rough treatment.
- 2) Moisten the boards by water or by exposure to damp air before placing them in position.
- 3) On no account should the boards be forced into their position.
- 4) Adjust the boards accurately against the studding, battens or walls to which they are to be fixed.

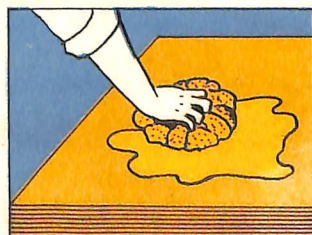
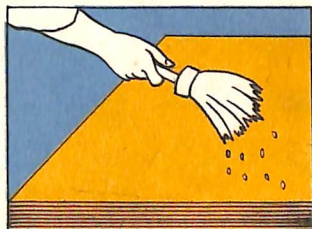
Unpacking

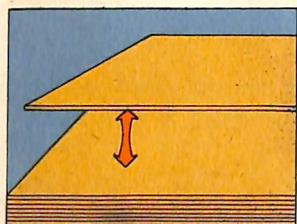
A careful unpacking of the boards helps towards obtaining good results. Damage to surfaces, edges or corners must be avoided.

Moistening

Ankarboard is shipped from the factory with a moisture content below normal humidity. It is therefore necessary before using insulation or hardboards to adjust the moisture content of the boards. This can carefully be done by dampening on one side with a wet cloth or sponge and this process will not affect the flatness or the shape of the material.

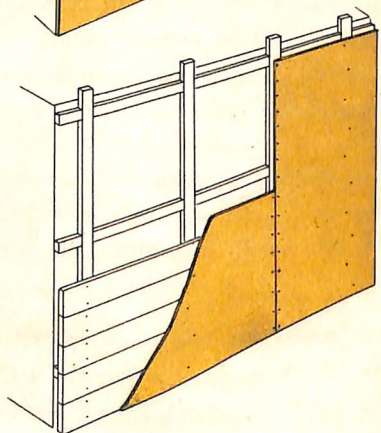
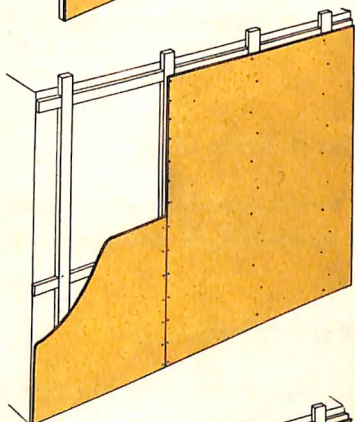
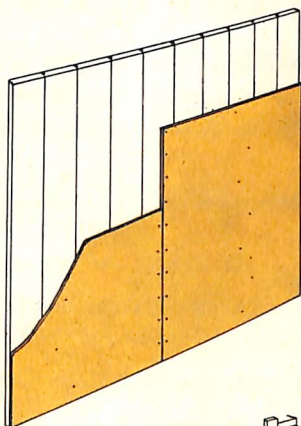
The moistening should be applied over the whole surface uniformly and the side which is moistened should be placed against the studding, walls or base.





Moistening

After moistening, the boards should be stacked with the wet surfaces face to face. Insulating boards should be left for a period of 24 hours, and hardboards for about 48 hours. As it is important that the boards have a uniform moisture content during their preparation, they must not be placed in a warm room or exposed to the sun. The boards after the moistening process can be taken one by one and fixed in their position, preferably before they are completely dry.



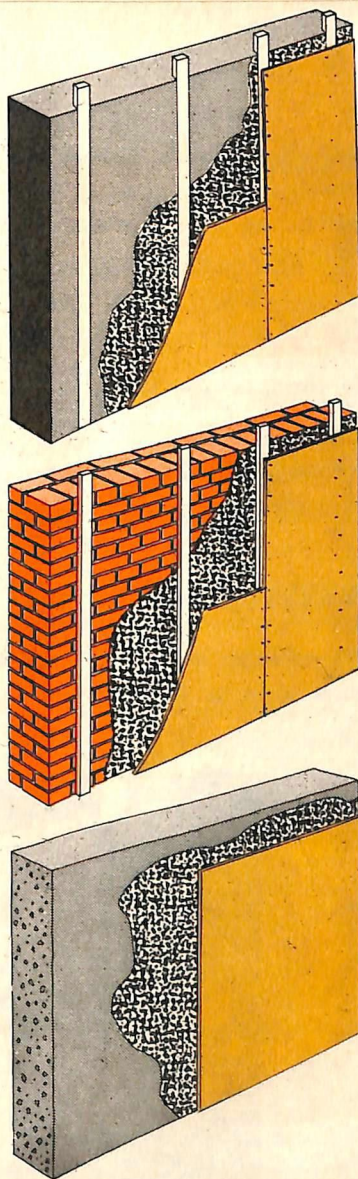
Bases

In using Ankarboard for the lining of walls or ceilings fixed directly on to battens, which will allow for air space between the sheets and the walls, the battens should be fixed at distances from 12"—16". The most convenient distance is about one third of the width of the board.

If further strengthening is required, cross battens may be fixed say at 3'—4' distances. When fibre building board is fixed on the lower part of the wall as a dado where the panels would be subject to hard wear, the boards should be fixed with cross battens at, say, 12"—16".

The above is for fibre boards being fixed with nails, but the same results can be secured where the boards are bonded with special glues.

If used for the covering of brick, concrete or stone walls where there is no battening or slats and where same is applied with a mastic glue and where there is no space allowed for ventilation between the fibre board and wall base, great care should be taken to see that the base walls are perfectly dry and, if necessary, in order to secure the highest value of insulation, such walls shall be treated with an asphalt emulsion or similar substance before the fibre boards are applied.



Fixing

Boards may be fixed with visible or invisible joints.

For visible joints the sheets are placed with a gap of about $\frac{3}{8}$ inch between the edges, which may be square or bevelled as desired. The joints can be covered with strips, and this is preferable when boards are used on ceilings.

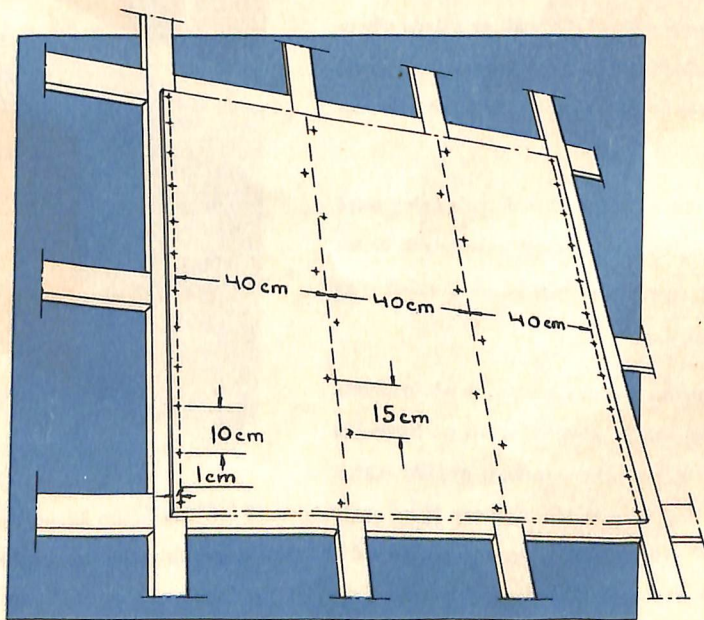
To obtain invisible joints, place the sheets edge to edge, but pressure must not be exerted when placing them in position.

For the interior fitting of Ankarboard three different methods may be employed:

- 1) Nailing.
- 2) Glueing.
- 3) A combination of both.

Nailing

Use preferably special wall board nails for both insulating and hardboards. Each board must be fastened with a few nails at the upper edge first, so that it



remains suspended. Between the lower edge and the floor a small space must be left; this is easily effected by resting the board on a piece of wood or Ankar-board of $\frac{1}{2}$ inch thickness which is taken away after the top of the board is secured. The boards are nailed from the top to the bottom, bearing in mind that the row of nails nearest to the board previously secured must be nailed a little in advance of the other rows. Four rows of nails are sufficient for each board, two rows at the vertical edges at a distance of about $\frac{1}{2}$ inch from each edge, and two rows placed at equal distance between these. The space between the nails in the outside rows of each board should be about 3 inches for hardboard and about 6 inches for insulating board and space between the nails in the inside rows about 9 inches for all qualities. It is advisable to nail the inside rows in zig-zag form.

Care should be taken that the nails are not too far embedded in the board, so as to prevent hammer marks being noticeable after treatment of the surface.

Glueing

For interior work, provided it is reasonably dry, the use of glue or mastic as a bond to studding, battens and walls of wood, brick or cement, has been found to be successful.

There are a number of very good suitable cold glues or mastic which may be used to advantage. The method adopted is that the glue or mastic is applied to the base surface and to the corresponding parts of the boards. When the boards are in position they must, however, be kept in a fixed position until the glue has hardened. To do this, narrow strips of wood can be fastened to the outer boards, using pins or fine wire nails. When the glue has hardened, these strips, together with their nails, can be removed, but care must be taken not to injure the fibre building boards.

The holes left by the nails will disappear completely when the boards are painted.



GLUEING (Continued)

When fixing the boards to brick, stone or concrete walls it should be borne in mind that the glue or mastic must be applied in larger quantities and over a wider area. In this case glue or mastic is only applied to the brick, stone or concrete walls. During the time the glue takes to harden, the boards must be kept in position with pieces of wood or similar clamps.

Always when fixing with glue or mastic, the edges of the boards must be placed very close to each other without exerting any pressure.

Always bear in mind the necessity for moistening the boards before carrying on the glueing.

Combination of nailing and glueing

A very good result is obtained by a combination of glueing and nailing the boards. If this process is to be used, the glue or mastic is applied both to the base and to the board. The glue or mastic, however, must not be applied over the whole of the surface, but only for about two inches along the edge of the board and on the corresponding parts of the base; it is also advisable to glue the middle of the boards. They are afterwards nailed according to the instructions given for nailing. Surplus glue protruding from the edges can be wiped off with a cloth.

On glueing hardboard it is recommended that the joints be bevelled as shown in the illustration.

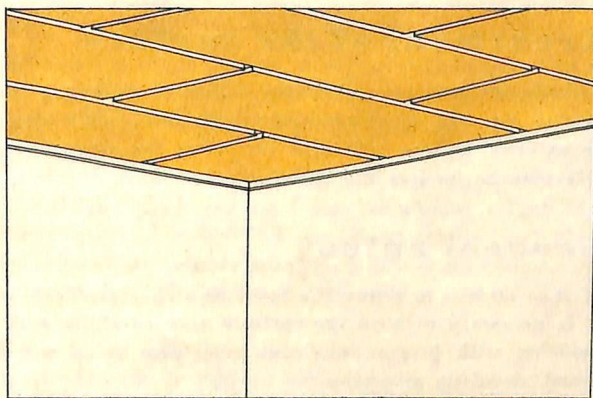
The joints can be covered with a thin batten carefully nailed with pins or thin wire nails until the glue has hardened.

By using this method, movement of the joints is avoided; the glue keeps the boards in place should any shrinking or swelling occur. This method is also recommended should the walls be papered; the result obtained is better than the usual method of applying paper or linen strips over the joints.

This method can also be employed when only using nails.

When using Ankarboard for an interior ceiling —

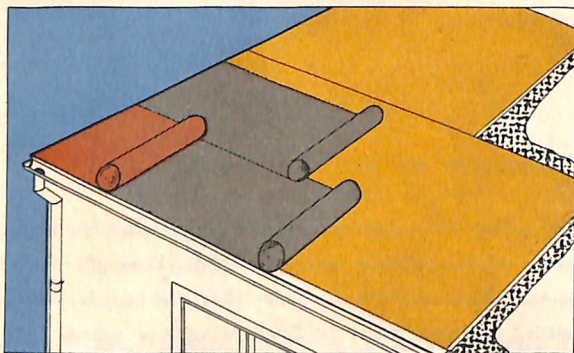
It is advisable to divide the ceiling into squares or rectangles, fixing the boards either with bevelled edges or with mouldings over the joints. If mouldings are not used it is necessary to nail very carefully in order that the boards do not sag after fixing. The boards, however, must be fixed in such a manner that the joints become flush and do not expand or contract. In each case it is preferable to apply the combined nailing and glueing method.



Ankarboard can be used for

Insulation of roofs

The boards are placed in position with asphalt, the roof being covered afterwards with asphalt or similar material.



Base for linoleum or parquet

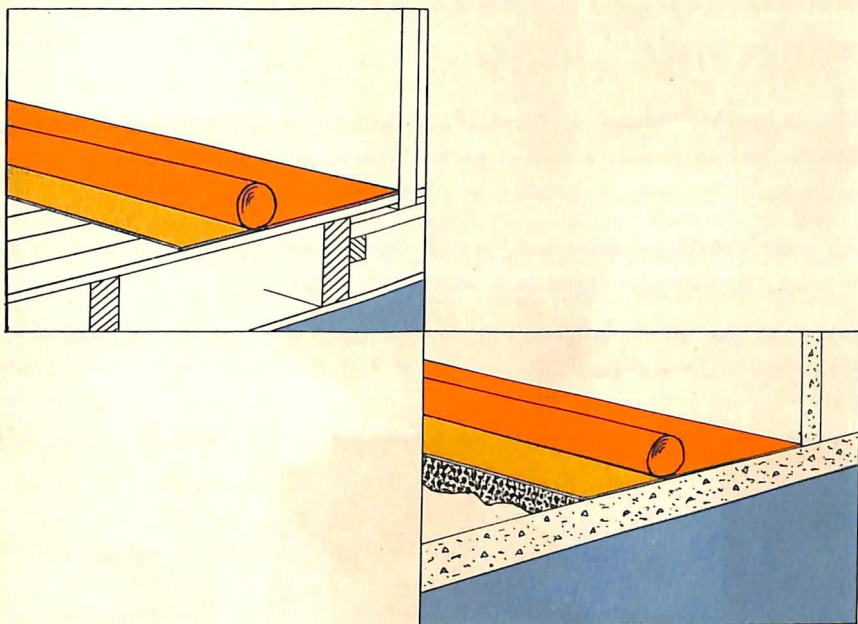
If the floor is of wood the boards can be nailed or glued to the floor as previously described. If the floor is of concrete the boards can be fixed in asphalt or linoleum cement or mastic glue. The floor must always be level and clean. Old wooden floors must be levelled before fixing Ankarboard sheets.

Treatment of the surface

Ankarboard has two distinctly different surfaces. One side of the insulating quality has the appearance of rough cloth, while the hardboard has a smooth appearance on one side and the other the appearance of a fine mesh. Either side may be used as face finish.

General rules

If it is desired to retain the insulating characteristics of the insulating quality, it is necessary to treat the surfaces very carefully with varnish or water paint; painting with preparations containing gum or oil will diminish to some extent sound absorbing properties.



Surfaces must not be treated before the boards are entirely dry

When papering on Ankarboard the smoother surface is to be turned outwards. The use of lining paper is thus avoided.

When painting on Ankarboard the rough surface is preferred in many cases as this surface lends itself to a very decorative effect. When oil paint is used the surface should first be treated with a light coating of thin sizing.

Before painting Ankarboard, the nailholes can be filled in with a preparation of one third part of plaster of paris and two third parts of whiting mixed with thin glue to a suitable consistency. A good filling can also be obtained by adding to the glue a pulp of Ankarboard in suitable quantity. If it is desired to preserve the texture of the surface care should be taken that the filling does not spread beyond the nailholes.

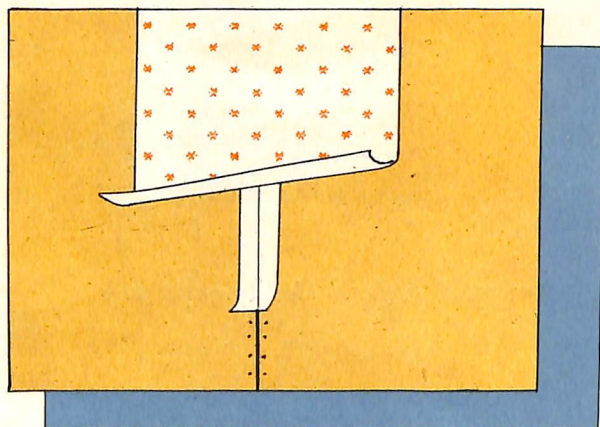
Ankarboard can be used advantageously without any colouring treatment.

Treatment of the surface for papering

Before papering the surface of Ankarboard the joints should be treated or covered. This is done by glueing a strip of gauze about three inches wide over the joints or by carefully fixing as described in a previous paragraph.

All nails should be galvanised, but if non galvanised nails are used, it is necessary that they be dipped in a solution of shellac.

When the glue on the strips has dried, paperhanging is done in the usual way.



Staining and varnishing

To colour Ankarboard either stain or varnish may be used. Staining can be done with either water or spirit stain to any desired tone. A light base colour can easily be applied to Ankarboard. After staining, the surface can also be brightened by polishing or varnishing. If the stained surface is covered with cellulose, a washable surface with great resistance to wear and tear is obtained. If desired, a trace of metallic bronze colour may be added to the cellulose to give more life to the surface.

Treatment of the surface

Distempering

This is a simple and relatively economic treatment. The nail holes are filled with stopping as previously described.

A solution of size is used to which is added the necessary colour in the shade required. When the filling has dried the board can be covered with the distemper without any special base treatment. In this case, however, the boards will have open and visible joints. If a somewhat better surface is desired, the boards may, before being treated with distemper, have a coating of sizing and then oil paint can be applied.

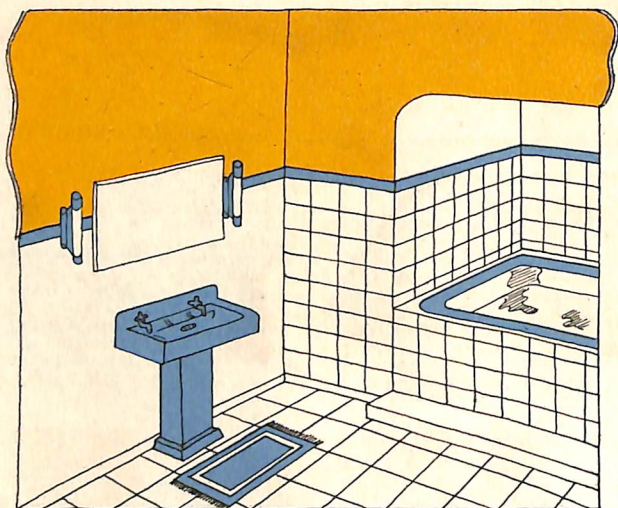
Colours with dextrine or casein may also be used.

Painting with cold water and plastic paints

The nail holes and joints are treated as before described, the whole surface being afterwards treated with diluted colour; cold water colours may then be applied directly to this surface.

When covering with plastic colours the paint is applied in figurings or graining to any design required, the surface being afterwards treated in accordance with the instructions given for the particular paint used.





Treatment of the surface

Painting with oil paint

When painting with oil paint the nail holes are filled and the joints covered with strips of gauze as instructed. The joints must also be filled. The whole surface is then covered with a solution of concentrated sizing. When this has dried the surface is painted in the usual way. For the base a thick oil paint must be used, the finishing coat being made with a glossy or matt surface oil paint or with lacquer.

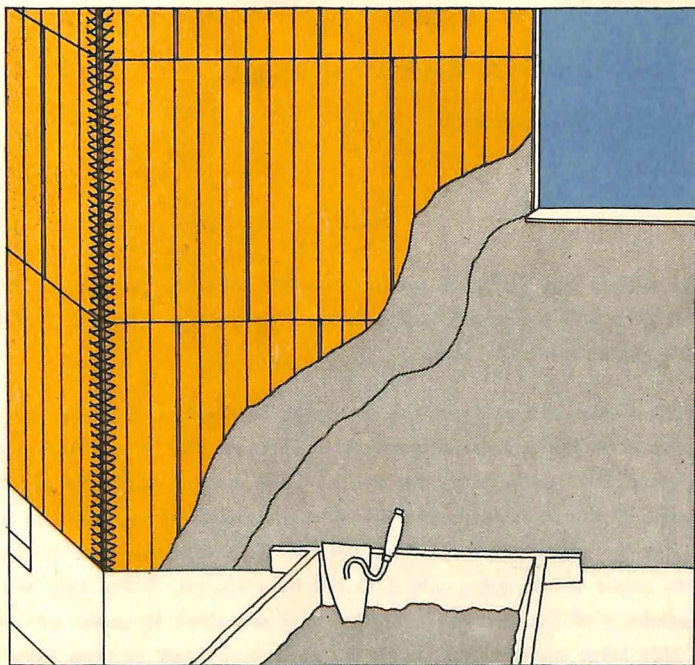
If hardboard is used in bathrooms and oil paint is to be used, two coats will be needed, the second being mixed with about one third shellac. Finish with a coat of enamel.

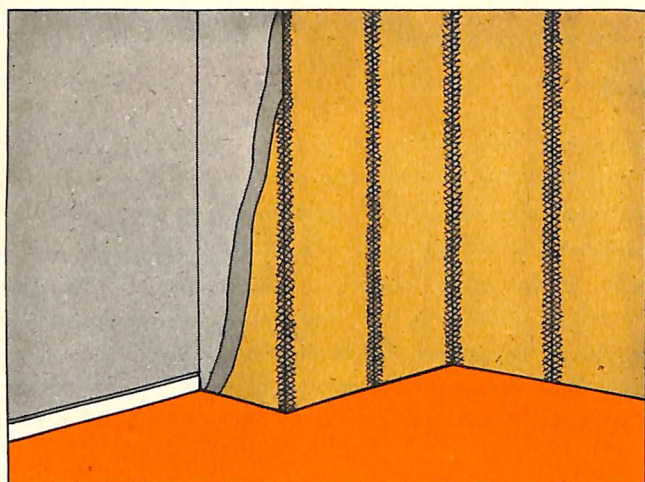
Painting with cellulose paints

If Ankarboard is to be painted with cellulose, the nail holes and joints must be stopped up with a cellulose composition filling. When this has been done the surface is treated with oil covering. It is then sprayed two or three times with cellulose paint or finish.

Plastering insulation Ankarboard

When plastering Ankarboard, only the special grooved insulating sheets size $2' \times 4'$ may be used, this being the only size manufactured in this quality. By making sheets of this small size any expansion of the board is avoided, thus eliminating the risk of cracks, which may appear in the plaster if larger boards are used. The grooving in the board makes an excellent key, it being thus possible to plaster the boards without further special treatment or preparation for the support of the plaster. To prevent the plaster from getting into the joints between the boards and thus reducing their insulating value, the boards are supplied with their edges tongued and grooved, fitting one with the other when the boards are fixed.





Plastering insulating Ankarboard

The boards are fixed in position in the same way as already described. They should be well moistened before being placed in position. Nailing must be done with galvanised nails only.

In no circumstances must the plastering be done on a dry surface; it is imperative that the boards be carefully moistened. The best results are obtained by keeping the boards damp during the whole process until the plastering is completed. Firstly a fluid plaster mixed with cement is applied, one part of cement to six or eight parts of lime plaster. Note that the cement should be mixed with water before being added to the lime plaster. When this has hardened the main body of the plaster is applied and smoothed in usual way. The thickness of this layer on levelling should be about half inch or even less.

Rooms should be well ventilated when carrying out interior plaster work.

By fitting insulating Ankarboard sheets with the grooved side inwards on concrete wall moulds, the sheets will remain fixed to the wall, forming an excellent support for greater insulation with Ankarboard and as a good base for papering.

Where the standard insulating quality of Ankarboard (without grooving) is used for plastering, the boards must not be larger than 2' x 4'. A free space must be left between the boards and a stripe of fine wire mesh about $\frac{3}{8}$ inch wide fitted over the joints. All corners and edges liable to be damaged should be treated in the same way. In exterior plastering the whole surface should, as being exposed to changes of temperature, be covered with wire mesh.

Hardboard is not used for plasterwork.



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